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**MEMORANDUM**
**(Confidential / Pre-Decisional)**

Date: September 12, 2016

To: Ken Marcy, Site Assessment Manager, EPA, Portland, OR

From: Linda Ader, START-IV Team Leader, E & E, Seattle, WA LEA

Subject: Hazard Ranking System Score
Warrior of Idaho
Caldwell, Idaho

Ref: Contract Number: EP-S7-13-07
Technical Direction Document Number: 16-07-0001

A Hazard Ranking System (HRS) score of 9.47 was derived for the Warrior of Idaho, which is located in Caldwell, Idaho. The site score is based on the July 2014 *Preliminary Assessment and Site Inspection Report for Warrior of Idaho*, prepared by the Idaho Department of Environmental Quality (IDEQ) and their environmental consultant URS Corporation, and when necessary professional assumptions. The HRS scoresheets, which were generated using Quickscore version 3.1.0 software, are attached.

**Site Description:**
The Warrior of Idaho site is located on approximately 26.46 acres of land within an industrial portion of Caldwell, Idaho. During the 1960's the site was developed with multiple buildings used to manufacture prefabricated homes. The site was used for this purpose, and for manufacturing of recreational vehicles, until at least 2009. By 2014, these activities had ceased and buildings on the property were being used for storage of treated bean seeds, a trucking driver school, and a church.

In 2009, several potentially hazardous substances and petroleum products were observed on the property in conjunction with a Phase I Environmental Site Assessment. Of particular note, was one 55-gallon drum containing perchloroetheylene (PCE). This drum was stored in a warehouse near an approximate 0.5-foot diameter circular opening in the concrete floor. This opening appeared to possibly be associated with a former hydraulic lift. Follow-on soil and ground water on-site sampling from boreholes revealed the presence of PCE in these media.

**Pathways/Threats Not Evaluated:**
The surface water migration, soil exposure, and air migration pathways are not included in the discussions below due either to a lack of a likely migration route or to a lack of associated targets.

**Site Characteristics Information:**

| Site Name: | Warrior of Idaho |
|---|---|
| CERCLIS ID Number: | IDN001001692 |
| Latitude: | 43.66839 |
| Longitude: | -116.70509 |
| Legal Description: | Section 21, Township 4 North, Range 3 East |
| County: | Canyon |
| Congressional District: | 1 |

**Sources:**

1. **Contaminated Soil (contaminated soil):** A subsurface soil sample collected from a borehole placed near the 55-gallon drum of PCE contained PCE at a concentration of 2,800 micrograms per kilogram (ug/kg). Detectable concentrations of PCE were present in five other subsurface soil samples collected from four other boreholes. In general, samples were collected at depths within the 6 to 10 foot sampling interval, though one sample was collected from 23 to 25 feet below ground surface (bgs). Background subsurface soil samples were not collected. An estimate of the volume of contaminated soil was not provided in the preliminary assessment (PA) and site inspection (SI) report. The hazardous waste quantity for this source is known but greater than 0.

**GROUND WATER MIGRATION PATHWAY:**

The aquifer system is not described in the PA/SI report. Ground water in the Boise River watershed is being evaluated.

***Ground Water Likelihood of Release:***

- An observed release of PCE to shallow on-site ground water is documented. An observed release value of 550 is assigned.

**A ground water likelihood of release value of 550 is derived.**

***Ground Water Waste Characteristics:***

- The highest toxicity/mobility value that can be assigned is 100 based on PCE as the contaminants of concern.
- A hazardous waste quantity value of 10 is assigned.

**A ground water waste characteristics value of 6 is derived.**

***Ground Water Targets:***

- The nearest well factor value of 18 is assigned because the nearest well is between ¼ and ½ mile of the site.
- Population:
  - No people are subject to Level I concentrations. A value of 0 is assigned.
  - No people are subject to Level II concentrations. A value of 0 is assigned.
  - Although PCE has been detected in shallow ground water at the site, it was not present in a deeper ground water sample collected from an on-site borehole. For this reason, drinking water targets are not expected to be subject to actual contamination. The PA/SI report indicates the presence of 1,761 domestic and 59 public drinking water wells within the 4-mile target distance limit (TDL), but does not provide well populations by distance

ring nor any information relating to the number of people served by these wells. The report includes a map of domestic and public well locations overlain by ¼-, ½-, 1-, 2-, 3-, and 4-mile distance rings; however, the number of wells on the figure appear to be far fewer that the number indicated in the text. Based on this map, it appears there are three domestic drinking water wells within the 0 to ¼ mile distance ring; however, the report text states that none of these wells are suspected to currently be used for drinking water. Although an explanation for this assumption is not provided in the PA/SI report, this HRS score will assume no drinking water wells are in this distance ring. According to information obtained from the U.S. Census Bureau's webpage, the average number of persons per household in Canyon County, Idaho is 2.98 (USCB 2016). The number of people served by public drinking water wells cannot be discerned from information available in the PA/SI report. It will be assumed that each public well serves 500 people due to the site's rural setting. The distance-weighted population by distance ring is estimated as follows:

| Distance Ring | Number of Wells (a) | Well Population (a x 2.98 for domestic wells and a x 500 for public wells) | Total Population per Distance Ring | Distance-Weighted Population Value (from Table 3-12) |
|---|---|---|---|---|
| 0 to ¼ mile | 0 | NA | 0 | 0 |
| ¼ to ½ mile | 3 Domestic<br>2 Public | 8.94<br>1,000 | 1,008.94 | 1,013 |
| ½ to 1 mile | ~40 Domestic<br>3 Public | 119.20<br>1,500 | 1,619.20 | 523 |
| 1 to 2 miles | ~150 Domestic<br>13 Public | 447<br>6,500 | 6,947 | 939 |
| 2 to 3 miles | ~784 Domestic<br>11 Public | 2,336.32<br>5,500 | 7,836.32 | 678 |
| 3 to 4 miles | ~784 Domestic<br>16 Public | 2,336.32<br>8,000 | 10,336.32 | 1,306 |
| Total distance-weighted population | | | | 4,459/10 = 445.9 |

**A ground water population value of 445.90 is derived.**

- The PA/SI report does not relate ground water well resource use information. For HRS scoring purposes, it is assumed that ground water is used for livestock watering within the 4-mile TDL since it is assumed that cattle grazing occurs within this distance. A resource factor value of 5 is assigned.
- The PA/SI report does not contain information regarding wellhead protection areas. Due to the number of public water supply systems within the 4-mile TDL, it is assumed that a wellhead protection area is present within the 4-mile TDL. A wellhead protection value of 5 is assigned.

**A ground water targets value of 473.90 is derived.**
**A GROUND WATER MIGRATION PATHWAY score of 18.95 is derived.**

If you have any questions regarding this memorandum or its assumptions, please contact me at 206-624-9537.

****** CONFIDENTIAL ******
******PRE-DECISIONAL DOCUMENT ******
****** SUMMARY SCORESHEET ******
****** FOR COMPUTING PROJECTED HRS SCORE ******

****** Do Not Cite or Quote ******

Site Name: Warrior of Idaho
Region: Region 10
Scenario Name: Ground water pathway
City, County, State: Canyon, Idaho
Evaluator: L. Ader
EPA ID#: IDN001001692
Date: 09/08/2016
Lat/Long: 43:40:6,-116:42:18
Congressional District: 1
This Scoresheet is for: Combined PA/SI
Scenario Name: Ground water pathway
Description: PCE contaminated site

| | S pathway | $S^2$ pathway |
|---|---|---|
| Ground Water Migration Pathway Score ($S_{gw}$) | 18.95 | 359.1 |
| Surface Water Migration Pathway Score ($S_{sw}$) | 0.0 | 0.0 |
| Soil Exposure Pathway Score ($S_s$) | 0.0 | 0.0 |
| Air Migration Score ($S_a$) | 0.0 | 0.0 |
| $S^2_{gw} + S^2_{sw} + S^2_s + S^2_a$ | | 359.1 |
| $(S^2_{gw} + S^2_{sw} + S^2_s + S^2_a)/4$ | | 89.78 |
| / $(S^2_{gw} + S^2_{sw} + S^2_s + S^2_a)/4$ | | 9.48 |

Pathways not assigned a score (explain):

**TABLE 3-1 --GROUND WATER MIGRATION PATHWAY SCORESHEET**

| Factor categories and factors | Maximum Value | Value Assigned | |
|---|---|---|---|
| Aquifer Evaluated: Boise River Watershed Aquifer | | | |
| **Likelihood of Release to an Aquifer:** | | | |
| 1. Observed Release | 550 | 550.0 | |
| 2. Potential to Release: | | | |
| 2a. Containment | 10 | 0.0 | |
| 2b. Net Precipitation | 10 | 0.0 | |
| 2c. Depth to Aquifer | 5 | 1.0 | |
| 2d. Travel Time | 35 | 1.0 | |
| 2e. Potential to Release [lines 2a(2b + 2c + 2d)] | 500 | 0.0 | |
| 3. Likelihood of Release (higher of lines 1 and 2e) | 550 | | 550.0 |
| **Waste Characteristics:** | | | |
| 4. Toxicity/Mobility | (a) | 100.0 | |
| 5. Hazardous Waste Quantity | (a) | 10.0 | |
| 6. Waste Characteristics | 100 | | 6.0 |
| **Targets:** | | | |
| 7. Nearest Well | (b) | 18.0 | |
| 8. Population: | | | |
| 8a. Level I Concentrations | (b) | 0.0 | |
| 8b. Level II Concentrations | (b) | 0.0 | |
| 8c. Potential Contamination | (b) | 445.89 | |
| 8d. Population (lines 8a + 8b + 8c) | (b) | 445.89 | |
| 9. Resources | 5 | 5.0 | |
| 10. Wellhead Protection Area | 20 | 5.0 | |
| 11. Targets (lines 7 + 8d + 9 + 10) | (b) | | 473.89 |
| **Ground Water Migration Score for an Aquifer:** | | | |
| 12. Aquifer Score [(lines 3 x 6 x 11)/82,5000][c] | 100 | | 18.95 |
| **Ground Water Migration Pathway Score:** | | | |
| 13. Pathway Score ($S_{gw}$), (highest value from line 12 for all aquifers evaluated)[c] | 100 | | 18.95 |

[a] Maximum value applies to waste characteristics category
[b] Maximum value not applicable
[c] Do not round to nearest integer